Neurofeedback Training to Control Alcohol Craving

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Project Overview

We will use a brain imaging technique called 'Neurofeedback'

- To identify regions in your brain that respond to alcohol pictures
- To train you to control (reduce) these brain responses

→ This will possibly help you to control your drinking urges when you encounter alcohol cues in your environment (e.g. in advertisements) and thus to keep abstinent.

Neurofeedback Uses MRI

= Magnetic Resonance Imaging

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A strong magnetic field is involved which is produced by the scanner and allows us to scan your brain.

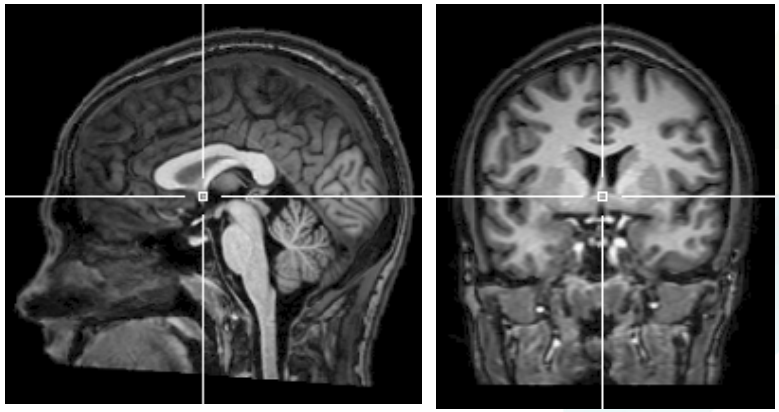
We make sure you are safe to enter the scanner.

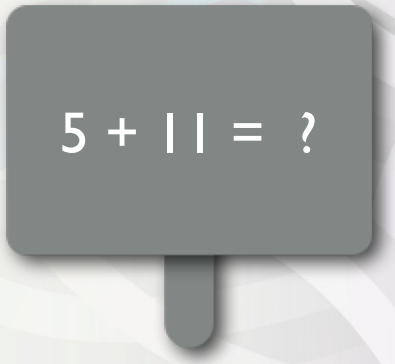
Neurofeedback Uses MRI

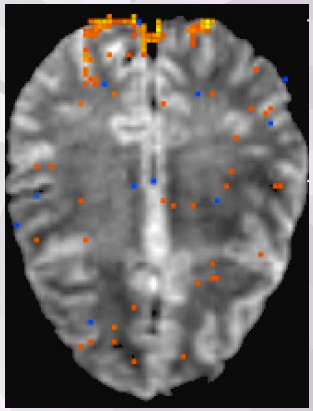
= Magnetic Resonance Imaging

The scanner produces images of your brain based on blood flow related to your brain activity.

How Do MRI Images look like?







Anatomical scans

→ Often used for medical purposes but our study does not aim to detect 'brain anomalies' nor will it provide a 'health check'

Functional scans

→ Used for research: How does our brain control behaviour?

→ 'Color blobs': Active brain regions during a specific task (e.g. arithmetics, memory, viewing alcohol pictures)

Are there any risks involved in MRI?

- There is no radiation, no injections, no drugs you have to take.
- However: MRI uses a strong magnetic field so you can't be scanned if you have any metal or implanted devices in your body (e.g. pacemaker).
- Safety screening procedures will make sure that you are safe to be scanned.
- The scanner is very noisy but you will be wearing ear protection.

How does Neurofeedback work?

You in the scanner

Computer analyses your brain activity, e.g. in the 'alcohol centre' of your brain.

The activity level in your 'alcohol centre' is shown to you, e.g. by a thermometer.

How does Neurofeedback work?

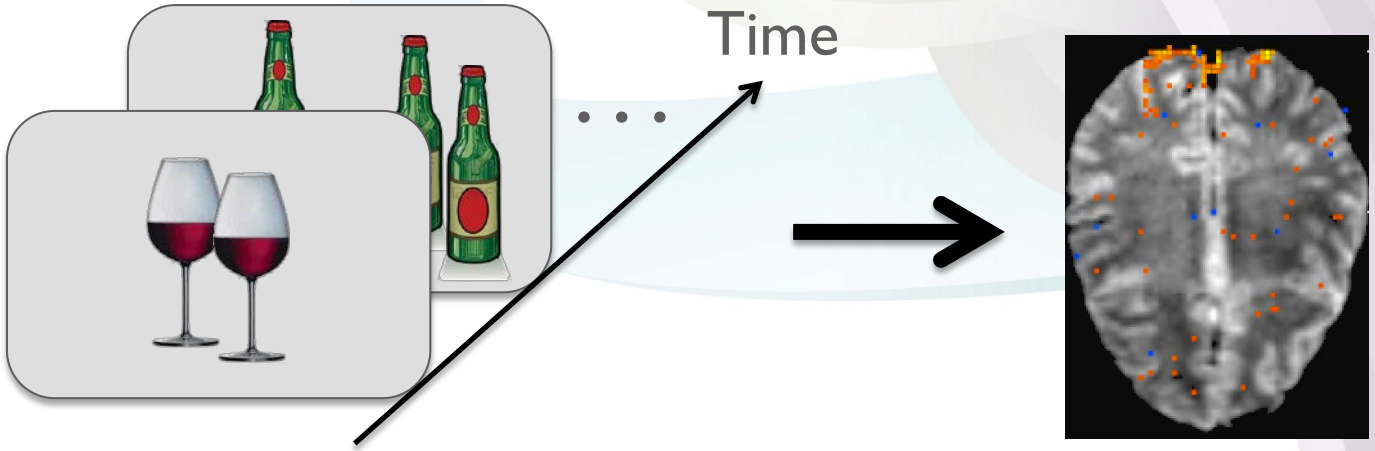
You in the scanner

Computer analyses your brain activity, e.g. in the 'alcohol centre' of your brain.

Your task: Lower the temperature! (= reduce activity)

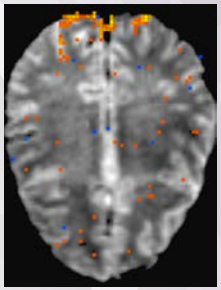
How do we find your 'alcohol centre'?

- We will show you photos of alcoholic beverages and pick in each participant individually the brain region that most strongly responds to the pictures.
- This region likely to be involved in evoking drinking urges or craving.



How can I control my brain activity?

- You will be 'trained' in the technique step-by-step and in multiple sessions but can use whatever mental strategy works best for you, e.g. thinking of the negative consequences of drinking.
- Neurofeedback is learning-by-doing!
- To help you reduce your brain activity, we will make the pictures smaller if you are successful.



The more you reduce your 'alcohol centre' response, the smaller the picture

What are the benefits of taking part?

- You will learn a new self-regulation technique that may help you to resist your drinking urges and thus to keep you abstinent.
- You will contribute to important research into how alcohol dependence can be effectively treated.
- You will learn about science and how research is carried out.